

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION	1-1
1.1 Background.....	1-1
1.2 Purpose and Need for Action.....	1-9
1.3 Regulatory Authority and Responsibility	1-11
1.4 Relationship to BLM Policies, Plans, and Programs	1-12
1.5 Conformance with Existing Land Use Plans	1-12
1.6 Consultation and Coordination.....	1-18
2.0 PROPOSED ACTION AND ALTERNATIVES	2-1
2.1 Proposed Action.....	2-4
2.1.1 Regulatory Compliance, Mitigation and Monitoring.....	2-8
2.1.2 Hazardous and Solid Waste	2-9
2.2 Alternative 1	2-16
2.3 Alternative 2.....	2-19
2.4 Alternative 3.....	2-20
2.5 Alternative 4.....	2-21
2.6 Summary of Alternatives and Environmental Consequences	2-23
2.6.1 Background	2-23
2.6.2 Summary of Alternatives	2-23
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES	3-1
3.1 General Setting	3-5
3.1.1 Climate and Meteorology	3-5
3.2 Topography and Physiography.....	3-6
3.2.1 Affected Environment	3-6
3.2.2 Environmental Consequences.....	3-7
3.2.2.1 Proposed Action and Alternative 1	3-7
3.2.2.2 No Action Alternative.....	3-8
3.2.3 Regulatory Compliance, Mitigation and Monitoring.....	3-8
3.2.4 Residual Impacts.....	3-9
3.3 Geology, Mineral Resources, and Paleontology	3-9
3.3.1 General Geology and Coal Resources	3-9
3.3.1.1 Affected Environment	3-9
3.3.1.2 Environmental Consequences.....	3-11
3.3.1.2.1 Proposed Action and Alternative 1	3-11
3.3.1.2.2 No Action Alternative.....	3-11
3.3.1.3 Regulatory Compliance, Mitigation and Monitoring.....	3-12
3.3.1.4 Residual Impacts.....	3-12
3.3.2 Other Mineral Resources	3-12
3.3.2.1 Affected Environment	3-12
3.3.2.1.1 Conventional Oil and Gas.....	3-12

TABLE OF CONTENTS (Continued)

	3.3.2.1.2	Coal Bed Natural Gas (CBNG) ..	3-13	
	3.3.2.1.3	Other Minerals	3-15	
3.3.2.2	Environmental Consequences.....	3-16		
	3.3.2.2.1	Proposed Action and Alternative 1	3-16	
	3.3.2.2.2	No Action Alternative.....	3-17	
3.3.2.3	Regulatory Compliance, Mitigation and Monitoring.....	3-17		
	3.3.2.4	Residual Impacts.....	3-18	
3.3.3	Paleontology.....	3-18		
	3.3.3.1	Affected Environment	3-18	
	3.3.3.2	Environmental Consequences.....	3-20	
	3.3.3.2.1	Proposed Action and Alternative 1	3-20	
	3.3.3.2.2	No Action Alternative.....	3-20	
	3.3.3.3	Regulatory Compliance, Mitigation and Monitoring.....	3-20	
	3.3.3.4	Residual Impacts.....	3-21	
3.4	Air Quality.....	3-21		
3.4.1	Background	3-21		
	3.4.1.1	Regulatory Framework	3-21	
		3.4.1.1.1	Surface Coal Mine Regulatory Framework	3-26
	3.4.1.2	Emission Sources	3-29	
3.4.2	Particulate Emissions.....	3-30		
	3.4.2.1	Affected Environment for Particulate Emissions	3-30	
		3.4.2.1.1	Regional Particulate Emissions	3-30
		3.4.2.1.2	Site Specific Particulate Emissions	3-33
	3.4.2.2	Environmental Consequences Related to Particulate Emissions	3-34	
		3.4.2.2.1	Proposed Action and Alternative 1	3-34
		3.4.2.2.2	No Action Alternative.....	3-43
	3.4.2.3	Regulatory Compliance, Mitigation, and Monitoring for Particulate Emissions	3-43	
3.4.3	Emissions of Nitrogen Oxides	3-46		
	3.4.3.1	Affected Environment for NO _x Emissions	3-46	
		3.4.3.1.1	Regional NO _x Emissions	3-47
		3.4.3.1.2	Site Specific NO _x Emissions.....	3-47
	3.4.3.2	Environmental Consequences Related to NO _x Emissions	3-48	
		3.4.3.2.1	Proposed Action and Alternative 1	3-49

TABLE OF CONTENTS (Continued)

	3.4.3.2.2	No Action Alternative.....	3-51
3.4.3.3	Regulatory Compliance, Mitigation, and Monitoring for NO _x Emissions.....	3-52	
3.4.4	Visibility.....	3-56	
3.4.4.1	Affected Environment for Visibility.....	3-56	
3.4.4.2	Environmental Consequences for Visibility ..	3-58	
3.4.4.2.1	Proposed Action and Alternative 1	3-58	
3.4.4.2.2	No Action Alternative.....	3-58	
3.4.4.3	Regulatory Compliance, Mitigation, and Monitoring for Visibility Impacts	3-59	
3.4.5	Acidification of Lakes.....	3-59	
3.4.5.1	Affected Environment	3-60	
3.4.5.2	Environmental Consequences.....	3-60	
3.4.5.2.1	Proposed Action and Alternative 1	3-60	
3.4.5.2.2	No Action Alternative.....	3-61	
3.4.5.3	Regulatory Compliance, Mitigation, and Monitoring.....	3-61	
3.4.6	Residual Impacts to Air Quality	3-61	
3.5	Water Resources.....	3-61	
3.5.1	Groundwater	3-61	
3.5.1.1	Affected Environment	3-61	
3.5.1.1.1	Recent Alluvium.....	3-62	
3.5.1.1.2	Wasatch Formation	3-63	
3.5.1.1.3	Roland-Smith/Wyodak-Anderson Coal	3-68	
3.5.1.1.4	Subcoal Fort Union Formation	3-71	
3.5.1.2	Environmental Consequences.....	3-72	
3.5.1.2.1	Proposed Action and Alternative 1	3-72	
3.5.1.2.2	No Action Alternative.....	3-78	
3.5.1.3	Regulatory Compliance, Mitigation and Monitoring.....	3-78	
3.5.2	Surface Water	3-80	
3.5.2.1	Affected Environment	3-80	
3.5.2.2	Environmental Consequences.....	3-85	
3.5.2.2.1	Proposed Action and Alternative 1	3-85	
3.5.2.2.2	No Action Alternative.....	3-86	
3.5.2.3	Regulatory Compliance, Mitigation and Monitoring.....	3-87	
3.5.3	Water Rights	3-87	
3.5.3.1	Affected Environment	3-87	
3.5.3.2	Environmental Consequences.....	3-88	

TABLE OF CONTENTS (Continued)

	3.5.3.2.1	Proposed Action and Alternative 1	3-88
	3.5.3.2.2	No Action Alternative.....	3-89
	3.5.3.3	Regulatory Compliance, Mitigation and Monitoring.....	3-89
	3.5.4	Residual Impacts.....	3-90
3.6	Alluvial Valley Floors		3-90
	3.6.1	Affected Environment	3-90
	3.6.2	Environmental Consequences.....	3-92
	3.6.2.1	Proposed Action and Alternative 1	3-92
	3.6.2.2	No Action Alternative	3-92
	3.6.3	Regulatory Compliance, Mitigation and Monitoring....	3-93
	3.6.4	Residual Impacts.....	3-93
3.7	Wetlands.....		3-93
	3.7.1	Affected Environment	3-93
	3.7.2	Environmental Consequences.....	3-95
	3.7.2.1	Proposed Action and Alternative 1	3-95
	3.7.2.2	No Action Alternative	3-96
	3.7.3	Regulatory Compliance, Mitigation and Monitoring....	3-96
	3.7.4	Residual Impacts.....	3-97
3.8	Soils.....		3-97
	3.8.1	Affected Environment	3-97
	3.8.2	Environmental Consequences.....	3-98
	3.8.2.1	Proposed Action and Alternative 1	3-98
	3.8.2.2	No Action Alternative	3-99
	3.8.3	Regulatory Compliance, Mitigation and Monitoring....	3-99
	3.8.4	Residual Impacts.....	3-99
3.9	Vegetation		3-100
	3.9.1	Affected Environment	3-100
	3.9.2	Environmental Consequences.....	3-101
	3.9.2.1	Proposed Action and Alternative 1	3-101
	3.9.2.2	No Action Alternative	3-103
	3.9.3	Threatened, Endangered, Proposed, and Candidate Plant Species, and BLM Sensitive Species.....	3-104
	3.9.4	Regulatory Compliance, Mitigation and Monitoring...	3-104
	3.9.5	Residual Impacts.....	3-104
3.10	Wildlife.....		3-104
	3.10.1	General Setting	3-104
	3.10.1.1	Affected Environment	3-104
	3.10.1.2	Environmental Consequences.....	3-106
	3.10.1.2.1	Proposed Action and Alternative 1	3-106
	3.10.1.2.2	No Action Alternative.....	3-107
	3.10.2	Big Game	3-107
	3.10.2.1	Affected Environment	3-107
	3.10.2.2	Environmental Consequences.....	3-108

TABLE OF CONTENTS (Continued)

	3.10.2.2.1	Proposed Action and Alternative 1	3-108
	3.10.2.2.2	No Action Alternative.....	3-109
3.10.3	Other Mammals		3-109
	3.10.3.1	Affected Environment	3-109
	3.10.3.2	Environmental Consequences.....	3-110
	3.10.3.2.1	Proposed Action and Alternative 1	3-110
	3.10.3.2.2	No Action Alternatives	3-112
3.10.4	Raptors		3-112
	3.10.4.1	Affected Environment	3-112
	3.10.4.2	Environmental Consequences.....	3-113
	3.10.4.2.1	Proposed Action and Alternative 1	3-113
	3.10.4.2.2	No Action Alternative.....	3-113
3.10.5	Upland Game Birds.....		3-114
	3.10.5.1	Affected Environment	3-114
	3.10.5.2	Environmental Consequences.....	3-117
	3.10.5.2.1	Proposed Action and Alternative 1	3-117
	3.10.5.2.2	No Action Alternative.....	3-120
3.10.6	Other Birds		3-120
	3.10.6.1	Affected Environment	3-120
	3.10.6.2	Environmental Consequences.....	3-122
	3.10.6.2.1	Proposed Action and Alternative 1	3-122
	3.10.6.2.2	No Action Alternative.....	3-123
3.10.7	Amphibians, Reptiles, and Aquatic Species.....		3-123
	3.10.7.1	Affected Environment	3-123
	3.10.7.2	Environmental Consequences.....	3-124
	3.10.7.2.1	Proposed Action and Alternative 1	3-124
	3.10.7.2.2	No Action Alternative.....	3-125
3.10.8	Threatened, Endangered, Proposed, and Candidate Animal Species, and BLM Sensitive Species.....		3-125
3.10.9	Regulatory Compliance, Mitigation and Monitoring...		3-125
3.11	Land Use and Recreation.....		3-127
	3.11.1	Affected Environment	3-127
	3.11.2	Environmental Consequences.....	3-135
	3.11.2.1	Proposed Action and Alternative 1	3-135
	3.11.2.2	No Action Alternative.....	3-136
	3.11.3	Regulatory Compliance, Mitigation and Monitoring...	3-137
	3.11.4	Residual Impacts.....	3-137
3.12	Cultural Resources.....		3-137
	3.12.1	Affected Environment	3-137
	3.12.2	Environmental Consequences.....	3-140

TABLE OF CONTENTS (Continued)

3.12.2.1	Proposed Action and Alternative 1	3-140
3.12.2.2	No Action Alternative	3-141
3.12.3	Native American Consultation	3-141
3.12.4	Regulatory Compliance, Mitigation and Monitoring... 3-142	3-142
3.12.5	Residual Impacts.....	3-142
3.13	Visual Resources	3-142
3.13.1	Affected Environment	3-142
3.13.2	Environmental Consequences.....	3-144
3.13.2.1	Proposed Action and Alternative 1	3-144
3.13.2.2	No Action Alternative	3-144
3.13.3	Regulatory Compliance, Mitigation and Monitoring... 3-144	3-144
3.13.4	Residual Impacts.....	3-144
3.14	Noise	3-145
3.14.1	Affected Environment	3-145
3.14.2	Environmental Consequences.....	3-147
3.14.2.1	Proposed Action and Alternative 1	3-147
3.14.2.2	No Action Alternative	3-147
3.14.3	Regulatory Compliance, Mitigation and Monitoring... 3-148	3-148
3.14.4	Residual Impacts.....	3-148
3.15	Transportation	3-148
3.15.1	Affected Environment	3-148
3.15.2	Environmental Consequences.....	3-151
3.15.2.1	Proposed Action and Alternative 1	3-151
3.15.2.2	No Action Alternative	3-155
3.15.3	Regulatory Compliance, Mitigation and Monitoring... 3-156	3-156
3.15.4	Residual Impacts.....	3-156
3.16	Hazardous and Solid Waste	3-157
3.16.1	Affected Environment	3-157
3.16.2	Environmental Consequences.....	3-157
3.16.2.1	Proposed Action and Alternative 1	3-157
3.16.2.2	No Action Alternative	3-157
3.16.3	Regulatory Compliance, Mitigation and Monitoring... 3-157	3-157
3.16.4	Residual Impacts.....	3-157
3.17	Socioeconomics	3-158
3.17.1	Local Economy	3-158
3.17.1.1	Affected Environment	3-158
3.17.1.2	Environmental Consequences.....	3-159
3.17.1.2.1	Proposed Action and Alternative 1	3-159
3.17.1.2.2	No Action Alternative.....	3-161
3.17.2	Population.....	3-161
3.17.2.1	Affected Environment	3-161
3.17.2.2	Environmental Consequences.....	3-162
3.17.2.2.1	Proposed Action and Alternative 1	3-162
3.17.2.2.2	No Action Alternative.....	3-162

TABLE OF CONTENTS (Continued)

3.17.3	Employment.....	3-162
3.17.3.1	Affected Environment	3-162
3.17.3.2	Environmental Consequences.....	3-163
3.17.3.2.1	Proposed Action and Alternative 1	3-163
3.17.3.2.2	No Action Alternative.....	3-163
3.17.4	Housing	3-163
3.17.4.1	Affected Environment	3-163
3.17.4.2	Environmental Consequences.....	3-166
3.17.4.2.1	Proposed Action and Alternative 1	3-166
3.17.4.2.2	No Action Alternative.....	3-166
3.17.5	Local Government Facilities and Services	3-166
3.17.5.1	Affected Environment	3-166
3.17.5.2	Environmental Consequences.....	3-167
3.17.5.2.1	Proposed Action and Alternative 1	3-167
3.17.5.2.2	No Action Alternative.....	3-167
3.17.6	Environmental Justice	3-168
3.17.6.1	Affected Environment	3-168
3.17.6.2	Environmental Consequences.....	3-169
3.17.6.2.1	Proposed Action and Alternative 1	3-169
3.17.6.2.2	No Action Alternative.....	3-169
3.17.7	Regulatory Compliance, Mitigation and Monitoring...	3-169
3.17.8	Residual Effects	3-169
3.18	The Relationship Between Local Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity	3-169
3.19	Irreversible and Irretrievable Commitments of Resources	3-172
4.0	CUMULATIVE ENVIRONMENTAL CONSEQUENCES	4-1
4.1	Past, Present, and Reasonably Foreseeable Development	4-2
4.1.1	Coal Development	4-2
4.1.1.1	Coal Mine Development	4-2
4.1.1.2	Coal-Related Development.....	4-12
4.1.1.2.1	Coal Transportation	4-12
4.1.1.2.2	Electric Power Generation	4-13
4.1.1.2.3	Transmission Lines	4-14
4.1.1.2.4	Coal Conversion Technology....	4-15
4.1.2	Oil and Gas Development.....	4-16
4.1.2.1	Conventional Oil and Gas	4-16
4.1.2.2	CBNG Development.....	4-17
4.1.2.3	Oil and Gas Related Development.....	4-19
4.1.2.3.1	Pipelines	4-19
4.1.2.3.2	Refineries.....	4-21

TABLE OF CONTENTS (Continued)

4.1.3	Other Development Activity	4-21
4.1.3.1	Other Mining.....	4-21
4.1.3.2	Industrial Manufacturing	4-22
4.1.3.3	Reservoirs	4-23
4.1.3.4	Other Non-Energy Development.....	4-23
4.2	Cumulative Environmental Consequences	4-24
4.2.1	Topography and Physiography.....	4-27
4.2.2	Geology, Mineral Resources, and Paleontology	4-28
4.2.2.1	Coal	4-28
4.2.2.2	Oil and Gas	4-28
4.2.2.3	Other Mineral Resources	4-29
4.2.2.4	Paleontology	4-29
4.2.3	Air Quality	4-30
4.2.4	Water Resources	4-39
4.2.4.1	Groundwater	4-39
4.2.4.2	Surface Water.....	4-49
4.2.5	Alluvial Valley Floors	4-52
4.2.6	Soils.....	4-53
4.2.7	Vegetation, Wetlands and Riparian Areas	4-54
4.2.7.1	Vegetation	4-54
4.2.7.2	Special Status Plant Species.....	4-55
4.2.7.3	Noxious and Invasive Weed Species	4-55
4.2.7.4	Wetland and Riparian Species	4-55
4.2.8	Wildlife and Fisheries	4-56
4.2.8.1	Game Species.....	4-57
4.2.8.2	Nongame Species.....	4-59
4.2.8.3	Fisheries	4-60
4.2.8.4	Special Status Species.....	4-63
4.2.9	Land Use and Recreation.....	4-66
4.2.9.1	Grazing and Agriculture	4-66
4.2.9.2	Urban Use	4-67
4.2.9.3	Recreation	4-68
4.2.10	Cultural Resources and Native American Concerns	4-69
4.2.10.1	Prehistoric Sites	4-70
4.2.10.2	Historic Sites.....	4-70
4.2.10.3	Native American Traditional Cultural Places	4-72
4.2.10.4	Site Protection	4-72
4.2.11	Transportation and Utilities.....	4-72
4.2.12	Socioeconomics	4-74
4.2.12.1	Employment and the Economic Base.....	4-76
4.2.12.2	Labor Market Conditions	4-78
4.2.12.3	Personal Income	4-79
4.2.12.4	Population and Demographics	4-80
4.2.12.5	Housing	4-82
4.2.12.6	Public Education	4-85

TABLE OF CONTENTS (Continued)

4.2.12.7	Facilities and Services	4-86
4.2.12.8	Fiscal Conditions.....	4-88
4.2.12.9	Social Setting	4-91
5.0	CONSULTATION AND COORDINATION	5-1
6.0	REFERENCES CITED	6-1
7.0	GLOSSARY	7-1
8.0	INDEX	8-1

LIST OF TABLES

Table ES-1.	Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Eagle Butte West LBA Tract and Eagle Butte Mine – Assuming Highway 14-16 is Moved and the Underlying Coal is Recovered.....	ES-7
Table ES-2.	Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Eagle Butte West LBA Tract and Eagle Butte Mine – Assuming Highway 14-16 is Not Moved and the Underlying Coal is Not Recovered	ES-8
Table ES-3.	Projected Maximum Potential Near-field Impacts	ES-20
Table ES-4.	Modeled Change in Visibility Impacts at Class I and Sensitive Class II Areas	ES-21
Table ES-5.	Recent and Projected PRB Population	ES-23
Table 1-1.	Leases Issued and Exchanges Completed Since Decertification, Powder River Basin, Wyoming	1-5
Table 1-2.	Pending LBAs and Exchanges, Powder River Basin, Wyoming....	1-7
Table 2-1.	Regulatory Compliance, Mitigation and Monitoring Measures for Surface Coal Mining Operations Required by SMCRA and State Law for all Alternatives	2-10
Table 2-2.	Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Eagle Butte West LBA Tract and Eagle Butte Mine – Highway is Moved.....	2-24
Table 2-3.	Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Eagle Butte West LBA Tract and Eagle Butte Mine – Highway is Not Moved.....	2-25
Table 2-4.	Summary Comparison of Magnitude and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract	2-26

TABLE OF CONTENTS (Continued)

Table 2-5.	Summary Comparison of Magnitude and Duration of Cumulative Impacts	2-34
Table 3-1.	Comparison of Existing and Proposed Eagle Butte Mine Disturbance Area and Mining Operations – Highway is Not Moved.....	3-3
Table 3-2.	Comparison of Average Overburden and Coal Thicknesses and Approximate Postmining Surface Elevation Changes Under the No Action and Action Alternatives	3-8
Table 3-3.	Assumed Background Air Pollutant Concentrations, Applicable AAQS, and PSD Increment Values	3-23
Table 3-4.	Approximate Distances and Directions from the Eagle Butte West Tract General Analysis Area to PSD Class I and Class II Sensitive Receptor Areas.....	3-25
Table 3-5.	Summary of WDEQ/AQD Reports on Air Quality Monitoring in Wyoming’s PRB, 1980-2004.....	3-32
Table 3-6.	Annual Ambient NO ₂ Concentration Data	3-55
Table 3-7.	2001 Through 2005 Annual Mean NO ₂ Concentration Data	3-55
Table 3-8.	Existing Acid Neutralizing Capacity in Sensitive Lakes.....	3-61
Table 3-9.	Vegetation Types Identified and Mapped Within the Eagle Butte West LBA Tract Vegetation Analysis Area	3-101
Table 3-10.	Eagle Butte West LBA Tract Oil and Gas Ownership	3-132
Table 3-11.	Projected Socioeconomic Impacts from Leasing the Eagle Butte West LBA Tract Under the Proposed Action or Alternative 1 ...	3-161
Table 4-1.	Status and Ownership of Wyoming PRB Coal Mines.....	4-6
Table 4-2.	Current and Projected Wyoming PRB Coal Mine Development, Lower Production Scenario	4-10
Table 4-3.	Current and Projected Wyoming PRB Coal Mine Development, Upper Production Scenario	4-11
Table 4-4.	Current and Projected Wyoming PRB Coal-Related Development Scenario	4-13
Table 4-5.	Past, Present, and Projected Wyoming PRB Coal Mine and Coal-Related Development Scenario.....	4-17
Table 4-6.	Current and Projected Wyoming PRB Conventional Oil and Gas Development Scenario	4-18
Table 4-7.	Current and Projected CBNG Development Scenario for the Wyoming PRB.....	4-20
Table 4-8.	Wyoming PRB Conventional Oil and Gas, CBNG, and Related Development Disturbance and Water Projection.....	4-20
Table 4-9.	Current and Projected Wyoming PRB Total Development Scenario – Task 3 Study Area	4-27
Table 4-10.	Projected Maximum Potential Near-field Impacts	4-33
Table 4-11.	Maximum Predicted PSD Class I and Sensitive Class II Area Impacts	4-35

TABLE OF CONTENTS (Continued)

Table 4-12. Modeled Change in Visibility Impacts at Class I and Sensitive Class II Areas	4-36
Table 4-13. Predicted Total Cumulative Change in Acid Neutralizing Capacity of Sensitive Lakes.....	4-38
Table 4-14. Recoverable Groundwater in the Wasatch/Fort Union Aquifer System	4-40
Table 4-15. Water Use as of 2002 in the Powder/Tongue River Basin	4-50
Table 4-16. Surface Water Availability in the Powder/Tongue River Basin ..	4-50
Table 4-17. Water Use as of 2002 in the Northeast Wyoming River Basins .	4-51
Table 4-18. Surface Water Availability in the Northeast Wyoming River Basins.....	4-51
Table 4-19. Potential Cumulative Disturbance to Pronghorn Ranges from Development Activities—Lower and Upper Coal Production Scenarios	4-58
Table 4-20. Potential Cumulative Disturbance to White-tailed Deer Ranges from Development Activities—Lower and Upper Coal Production Scenarios	4-58
Table 4-21. Potential Cumulative Disturbance to Mule Deer Ranges from Development Activities—Lower and Upper Coal Production Scenarios	4-58
Table 4-22. Potential Cumulative Disturbance to Elk Ranges from Development Activities—Lower and Upper Coal Production Scenarios	4-59
Table 4-23. Potential Cumulative Impacts to Greater Sage-Grouse Leks from Coal Mine Development—Upper and Lower Coal Production Development Scenarios	4-66
Table 4-24. Task 1 and Task 2 Study Area Land Use by Surface Ownership	4-67
Table 4-25. AUMs and Acres of Cropland Estimated Unavailable on Lands Disturbed and Not Yet Reclaimed as a Result of Development Activities.....	4-68
Table 4-26. Square Miles of Projected Cumulative Disturbance and Number of Potentially Affected Cultural Resource Sites in the PRB Coal Review Task 3 Study Area – Lower and Upper Coal Production Scenarios	4-71
Table 4-27. PRB Rail Lines Coal Hauling Capacity and Projected Use	4-75
Table 4-28. Recent and Projected PRB Population	4-81
Table 4-29. Demographic Characteristics	4-83
Table 4-30. Total Housing Stock in 2000.....	4-83
Table 4-31. Monthly Housing Rents in 2003 in the PRB Study Area	4-84
Table 4-32. Summary of Mineral Development Tax Revenues Associated with Energy Resource Production Under the Lower Production Scenario	4-90
Table 4-33. Summary of Mineral Development Tax Revenues Associated with Energy Resource Production Under the Upper Production Scenario	4-90

TABLE OF CONTENTS (Continued)

Table 5-1	Federal, State, Tribal, and Local Governmental Agencies	5-3
Table 5-2.	List of Contributors and Reviewers	5-5
Table 5-3.	List of Preparers	5-7
Table 5-4a.	BLM Distribution List for Coal Leasing	5-8
Table 5-4b.	Eagle Butte Mine Distribution List for Draft EIS, Eagle Butte West Coal Lease Application	5-10

LIST OF FIGURES

Figure ES-1.	General Location Map with Federal Coal Leases and LBA Tracts	ES-2
Figure ES-2.	Eagle Butte West LBA Alternative Tract Configurations	ES-3
Figure ES-3.	Residences, School Bus Stops, Public Roads, and other Publicly Accessible Facilities Within and Adjacent to the Eagle Butte West LBA Tract	ES-6
Figure ES-4.	Maximum Modeled PM ₁₀ and NO _x Concentrations at the Eagle Butte Mine Ambient Air Boundary for the Year 2006	ES-11
Figure ES-5.	Life of Mine Drawdown Map, Resulting from Currently Approved Mining With Addition of the Eagle Butte West LBA Tract.....	ES-13
Figure 1-1.	General Location Map with Federal Coal Leases and LBA Tracts	1-2
Figure 1-2.	Eagle Butte Mine Federal Coal Leases and Eagle Butte West LBA Tract as Applied for.....	1-8
Figure 1-3.	City of Gillette Buffer Zone	1-16
Figure 2-1.	Eagle Butte West LBA Alternative Tract Configurations	2-2
Figure 3-1.	General Analysis Area	3-2
Figure 3-2.	Stratigraphic Relationships and Hydrologic Characteristics of Upper Cretaceous, Lower Tertiary, and Recent Geologic Units, PRB, Wyoming	3-10
Figure 3-3.	Active PM ₁₀ Monitoring Stations in Northeastern Wyoming.....	3-31
Figure 3-4.	Wind Rose, Air Quality, and Meteorological Stations at the Eagle Butte Mine.....	3-35
Figure 3-5.	Annual Coal Production and Overburden Removal vs. Ambient Particulates for Eagle Butte Mine (1996 through 2005)	3-36
Figure 3-6.	Maximum Modeled PM ₁₀ and NO _x Concentrations at the Eagle Butte Mine Ambient Air Boundary for the Year 2005	3-38

TABLE OF CONTENTS (Continued)

Figure 3-7.	Maximum Modeled PM ₁₀ and NO _x Concentrations at the Eagle Butte Mine Ambient Air Boundary for the Year 2006	3-39
Figure 3-8.	Residences, School Bus Stops, Public Roads, and other Publicly Accessible Facilities Within and Adjacent to the Eagle Butte West LBA Tract	3-42
Figure 3-9.	Visibility in the Badlands and Bridger Wilderness Area.....	3-57
Figure 3-10.	Locations of Currently Active Groundwater Monitoring and Water Supply Wells at the Eagle Butte Mine	3-66
Figure 3-11.	Geologic Cross Section of the Wasatch Formation Overburden in the Area of the Eagle Butte West LBA Tract..	3-67
Figure 3-12.	Life of Mine Drawdown Map, Resulting from Currently Approved Mining With Addition of the Eagle Butte West LBA Tract.....	3-76
Figure 3-13.	Surface Water Features Within and Adjacent to the Eagle Butte West LBA Tract	3-81
Figure 3-14.	Raptor Nest Sites, Sage Grouse Leks, and Prairie Dog Towns Within and Adjacent to the Eagle Butte West LBA Tract	3-111
Figure 3-15.	Sage Grouse Trends for the Wyoming Game and Fish Department Sheridan Region	3-118
Figure 3-16.	Sage Grouse Trends for Thunder Basin National Grassland	3-118
Figure 3-17.	Surface Ownership Within the Eagle Butte West LBA Tract	3-128
Figure 3-18.	Surface Ownership Detail of Echo Subdivision Area.....	3-129
Figure 3-19.	Oil and Gas Wells and Oil and Gas Ownership Within the Eagle Butte West LBA Tract.....	3-131
Figure 3-20.	Relationship Between A-Scale Decibel Readings and Sounds of Daily Life.....	3-146
Figure 3-21.	Transportation Facilities Within and Adjacent to the Eagle Butte West LBA Tract	3-149
Figure 3-22.	Oil and Gas Pipelines Within and Adjacent to the Eagle Butte West LBA Tract	3-150
Figure 3-23.	U.S. Highway 14-16 Proposed Alternative Relocation Routes.....	3-153
Figure 3-24.	Estimated Wyoming and Federal Revenues from 2005 Coal Production in Campbell County	3-160
Figure 4-1.	Wyoming Study Area for PRB Coal Review Studies Evaluating Current and Projected Levels of Development	4-3
Figure 4-2.	Tons of Federal Coal Leased Versus Tons of Coal Mined Since 1990	4-5
Figure 4-3.	Projected Total Coal Production from Campbell and Converse Counties Under the Lower and Upper Production Scenarios	4-9

TABLE OF CONTENTS (Continued)

Figure 4-4.	Wyoming Task 3 Study Area for PRB Coal Review Studies Evaluating Projected Environmental Consequences	4-26
Figure 4-5.	Extrapolated Extent of Cumulative Drawdown Within the Wyodak Coal Aquifer in the Coal Mine Subregion 1	4-44
Figure 4-6.	Projected Campbell County Population and Employment to 2020.....	4-82
Figure 4-7.	Projected Housing Demand in the PRB Study Area Under the Lower Production Scenario.....	4-84
Figure 4-8.	Projected School Enrollment Trends to 2015 Under the Lower Production Scenario	4-87

LIST OF APPENDICES

Appendix A.	Federal and State Agencies and Permitting Requirements
Appendix B.	Unsuitability Criteria for the Eagle Butte West LBA Tract
Appendix C.	Coal Lease-By-Application Flow Chart
Appendix D.	Bureau of Land Management Special Coal Lease Stipulations and Form 3400-12 Coal Lease
Appendix E.	Biological Assessment for the Eagle Butte West LBA Tract EIS
Appendix F.	BLM Sensitive Species Evaluation for the Eagle Butte West Coal Lease Application EIS
Appendix G.	CBNG Wells Capable of Production on or in Sections Adjacent to the Eagle Butte West LBA Tract